Characteristics

- Resistance sensor Pt 100 Ω/0°C.
- Standardized design according to DIN 43765.
- Robust and reliable sensor for use in gaseous and liquid media, e.g. air, steam, gas, water or oil.
- For medium temperature up to 400°C.
- For pressures up to 50 bar.
- Internationally recognized for marine purposes
- To be used together with ER regulators. See data sheet no. 4.6.01 and 4.6.05.

Applications

The temperature sensors are used for registration of temperatures in tubes, tanks and ducts.
The output signal of the sensor is used as reference for our ER regulators.
Type FF 12-2 / 4-20 mA is equipped with a built-in 2-wire transmitter with 4-20 mA output signals. The sensor is used in conjunction with controller type ER 3000 (see datasheet 4.6.05).

Due to small installation dimensions and internationally widespread measuring element the sensor is especially fitted for marine purposes, just as the applications on land are innumerable.

Design

The sensor consists of a pocket, a connection head and a measuring insert.
The pocket is constructed of acid proof steel and can stand temperature/pressure as stated in the diagram.
The connection head is made of light-alloy metal and complies with IP 65.
The measuring insert contains one or two measuring windings and may be fixed or exchangeable. The supply lines of the measuring insert are insulated from each other and from the insert tube with a ceramic insulator. Exchangeable measuring insert is mounted in the connection head by means of two spring loaded screws. This means that the measuring insert is always pressed towards the bottom of the pocket, and vibrations from the surroundings will not be transferred to the measuring insert, just like different heat evolutions of pocket and measuring insert are adjusted.
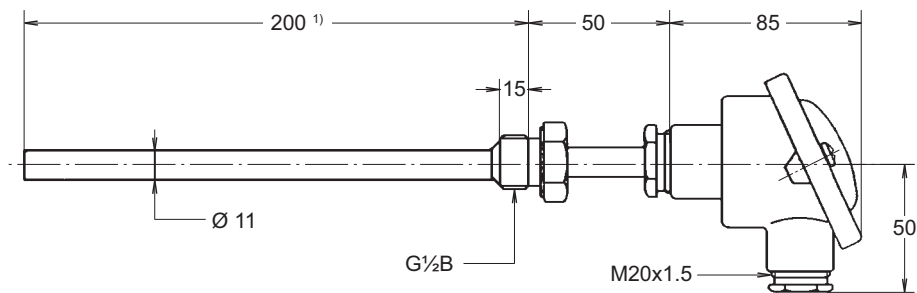Our standard types are shown in the below diagram.

Standard types

Type	Measuring	Comments
FF 12-2	1 x Pt 100	With exchangeable measuring insert
FF 12-R		Measuring insert for FF 12-2
FF 15-2	2 x Pt 100	With exchangeable measuring insert
FF 15-R		Measuring insert for FF 15-2
FF 12-2 / 4-20 mA	4-20 mA	With exchangeable measuring insert

Subject to change, without notice

Clorius
Controls A/S

Dimension sketch - type FF12-2
(mm)

200 [1]   50   85

15

Ø 11

G½B

M20x1.5

50

[1] Alternative lengths are available on request: 100 mm, 150 mm, 200 mm, 250 mm

Data for Pockets

According to DIN 43673
Material X10CrNiMoTi1810
W. No. 1.4571 corresponding to
    AISI 316 Ti
Connection: G½B.
Permissible torque moment: 50 Nm.
Permissible flow velocities:
    Air: 25 m/s
    Hot steam: 25 m/s
    Water: 3 m/s
Reaction times at liquid velocity:
    0.2 m/sec:
                  t 1/2:   17s
                  t 9/10:   44s
    t = total temperature step
Max. pressure: 50 bar
Max. temperature: 400°C
Weight incl. insert: 1 kg

Data for Measuring Insert

According to DIN 43762
The basic value of the measuring
resistance corresponds to DIN 43760.
Measuring range: -50°C to + 400°C
Measuring resistance: 1 x Pt 100 Ω or
                         2 x Pt 100 Ω
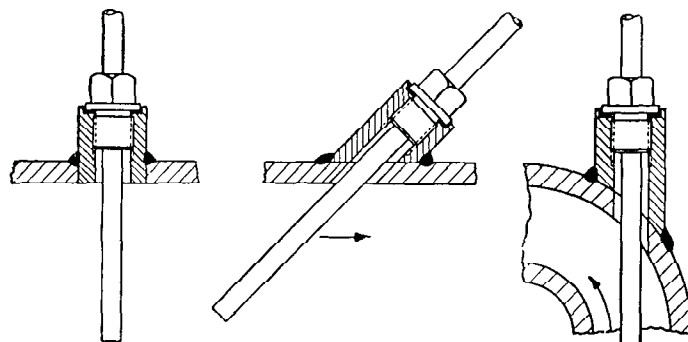Max. temperature: 400°C.

Insulation resistance between measuring
resistance and insert tube is over
1000 MΩ at room temperature. The insert
is made of stainless steel.

Spring travel: 8 mm
Two-core coupling
Resistance of inner cables for supply and
return line of the measuring insert:
    0.07 Ω/m
Weight of loose insert: 0.06 kg

Data for Connection Head

According to DIN 43729, form B
Material: Light-alloy metal
Seal: IP 65
Ambient temperature: max. 200°C

Examples of mounting

Subject to change, without notice.